AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A network system for setting a transfer path according to a spanning tree on a network connecting a plurality of nodes, wherein

two different networks are connected by a self-configuring partial network consisting of at least four nodes accommodating no terminal, and

~~the~~ a node belonging to said self-configuring partial network configures and manages a spanning tree for every other network adjacent to the self-configuring partial network, according to a spanning tree protocol,

wherein said node comprises:

a plurality of transfer units which determines an output destination port in every said self-configuring partial network, based on a destination MAC address of an input frame; and

a plurality of tree managers which configures a spanning tree for every said partial network and said network, according to the spanning tree protocol and transfers a frame,

wherein said tree manager comprises:

a tree controller which determines a state of a port according to the spanning tree protocol;

a BPDU transmitter/receiver which transmits and receives one or more control signals of the spanning tree protocol; and

a port blocking unit which closes or opens a port.

2. (Currently amended) The network system as set forth in claim 1, where

said self-configuring partial network is formed by a link connecting ~~said~~ opposite nodes, and

each pair of the nodes for the same number as forming said self-configuring partial network is connected to each different network.

3. (Canceled)

4. (Currently amended) The network system as set forth in claim 3, wherein said node comprises:

said tree manager which manages the spanning tree of the self-configuring partial ~~network,~~ network; and

a virtual port which packs into one of the output ports to said self-configuring partial network which connects to said transfer unit.

5. (Currently amended) The network system as set forth in claim 4, where said node comprises:

~~the several~~ transfer units which ~~determines~~ determine an output destination port in every said partial network, based on a destination MAC address of an input ~~frame,~~ frame;

an RPR frame transfer unit which determines a destination RPR address, a ring ID, and an output destination port, based on the destination MAC address of the input ~~frame,~~ frame;

~~the several~~ tree managers which ~~configures~~ configure a spanning tree for every said partial network, according to the spanning tree protocol and ~~transfers~~ transfer a ~~frame,~~ frame;

a TTL manager which performs subtraction of TTL and discards the frame by the ~~TTL,~~ TTL; and

the virtual port which connects said tree manager for managing the spanning tree of the self-configuring partial network and said RPR frame transfer unit and puts the output port toward the self-configuring partial network together.

6. (Currently amended) The network system as set forth in claim 5, wherein said TTL manager comprises:

a TTL checker which discards the frame with reference to a TTL ~~value,~~ value; and

a TTL controller which performs addition and subtraction of the TTL value.

7. (Currently amended) The network system as set forth in claim 1, wherein said node comprises:

a plurality of transfer units which determines an output destination port in every ~~said~~ partial network, based on a destination MAC address of an input frame,

a plurality of tree managers which configures a spanning tree for every said partial network, according to the spanning tree protocol and transfers a frame, and

a BPDU identifying unit which determines a tree manager of an output destination of an input BPDU frame according to an identifier.

8. (Currently amended) The network system as set forth in claim 7, wherein said BPDU identifying unit comprises:

an identifier inserting unit which inserts a tag or a bit (tags or bits) for identifying the tree ~~manager,~~ manager; and

an identifier deleting unit which deletes the tag or the bit (tags or bits) used for identifying the tree manager.

9. (Currently amended) The network system as set forth in claim 4, wherein said node comprises:

an address learning unit which creates a table, based on an input port and a source MAC address of the received ~~frame,~~ frame; and

a table which determines an output destination port by using the destination MAC address as a key.

10. (Currently amended) The network system as set forth in claim 9, wherein said table comprises:

a destination MAC address field which describes the destination MAC ~~address,~~ address; and

an output port field which describes an output destination port corresponding to the

destination MAC address.

11. (Currently amended) The network system as set forth in claim 1, wherein said node comprises:

a plurality of transfer units which determines an output destination port in every said partial network, based on an identification tag of an input ~~frame,~~ frame;

a multiphase tree manager which configures a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input ~~frame,~~ frame; and

a virtual port which connects said multiphase tree manager and said transfer unit and puts the output port toward the self-configuring partial network together.

12. (Original) The network system as set forth in claim 3, wherein said node comprises a failure detector which detects a failure through transmission and receipt of keep alive frames.

13. (Currently amended) The network system as set forth in claim 12, wherein said failure detector comprises:

a signal separator which ~~separats~~ separates the keep alive frames from the other ~~frame, and~~ frame; and

a keep alive signal transmitter/receiver which transmits and receives the keep alive frames.

14. (Original) The network system as set forth in claim 12, wherein said node comprises a frame blocking unit which cuts off the port at a time of double failure.

15. (Currently amended) The network system as set forth in claim 1, wherein said node comprises:

a plurality of transfer units which determines an output destination port in every said

partial network, based on an identification tag of the input ~~frame,~~ frame;

a multiphase tree manager which configures a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input ~~frame,~~ frame; and

a tag operation unit which inserts and deletes an identification tag.

16. (Canceled)

17. (Currently amended) A node ~~forming~~ that forms a spanning tree on a network connecting a plurality of nodes, the forming of the spanning tree comprising ~~the following steps of~~:

configuring a self-configuring partial network which connects two different networks by, at least, four nodes accommodating no terminal; and

configuring and managing a spanning tree for every other network adjacent to the self-configuring partial network, according to a spanning tree protocol,

wherein said node comprises:

a plurality of transfer units which determines an output destination port in every said self-configuring partial network, based on a destination MAC address of an input frame; and

a plurality of tree managers which configures a spanning tree for every said partial network and said network, according to the spanning tree protocol and transfers a frame,

wherein said tree manager comprises:

a tree controller which determines a state of a port according to the spanning tree protocol;

a BPDU transmitter/receiver which transmits and receives one or more control signals of the spanning tree protocol; and

a port blocking unit which closes or opens a port.

18. (Currently amended) The node as set forth in claim 17, wherein said configuring the self-configuring partial network ~~comprising the following steps of~~ comprises:

configuring said self-configuring partial network by a link connecting said opposite nodes; and

connecting each pair of the nodes for the same number as forming said self-configuring partial network to each different network.

19. (Canceled)

20. (Currently amended) The node as set forth in claim 19, said node comprising

said tree manager which manages the spanning tree of the self-partial ~~network,~~ network; and

a virtual port which packs into one the output ports to said self-partial network which connects said transfer unit.

21. (Currently amended) The node as set forth in claim 19, said node comprising:

the several transfer units which determines an output destination port in ~~every~~ said self-configuring partial network, based on a destination MAC address of an input frame;

an RPR frame transfer unit which determines a destination RPR address, a ring ID, and an output destination port, based on the destination MAC address of the input frame;

the several tree managers which configures a spanning tree for ~~every~~ said self-configuring partial network, according to the spanning tree protocol and transfers a frame;

a TTL manager which performs subtraction of TTL and discards the frame by the TTL; and

the virtual port for connecting said tree manager which manages the spanning tree of the self-configuring partial network and said RPR frame transfer unit and putting the output port toward the self-configuring partial network together.

22. (Currently amended) The node as set forth in claim 21, wherein said TTL manager comprises:

a TTL checker which discards the frame with reference to a TTL ~~value,~~ value; and

a TTL controller which performs addition and subtraction of the TTL value.

23. (Original) The node as set forth in claim 18, comprising:

a plurality of transfer units which determines an output destination port in every said partial network, based on a destination MAC address of the input frame;

a plurality of tree managers which configures a spanning tree for every said partial network, according to the spanning tree protocol and transfers a frame; and

a BPDU identifying unit which determines a tree manager of an output destination of an input BPDU frame according to an identifier.

24. (Currently amended) The node as set forth in claim 23, wherein said BPDU identifying unit comprises:

an identifier inserting unit which inserts a tag or a bit (tags or bits) for identifying the tree ~~manager,~~ manager; and

an identifier deleting unit which deletes the tag or the bit (tags or bits) used for identifying the tree manager.

25. (Original) The node as set forth in claim 19, comprising:

an address learning unit which creates a table, based on an input port and a source MAC address of the received frame; and

a table which determines an output destination port by using the destination MAC address as a key.

26. (Currently amended) The node as set forth in claim 25, wherein said table comprises:

a destination MAC address field which describes the destination MAC ~~address,~~

address; and

an output port field which describes an output destination port corresponding to the destination MAC address.

27. (Currently amended) The node as set forth in claim 18, comprising:

a plurality of transfer units which determines an output destination port in every said partial network, based on an identification tag of an input frame;

a multiphase tree manager which configures a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a virtual port which connects said multiphase tree manager and said transfer unit and puts the output port toward the self-configuring partial network together.

28. (Currently amended) The node as set forth in claim 19, comprising a failure detector which ~~deteetes~~ detects a failure through transmission and receipt of keep alive frames.

29. (Currently amended) The node as set forth in claim 28, wherein said failure detector comprises:

a signal separator which separates the keep alive frames from the other ~~frame,~~ frame; and

a keep alive signal transmitter/receiver which transmits and receives the keep alive frames.

30. (Original) The node as set forth in claim 28, comprising a frame blocking unit which cuts off the port at a time of double failure.

31. (Original) The node as set forth in claim 18, comprising:

a plurality of transfer units which determines an output destination port in every said

partial network, based on an identification tag of the input frame;

a multiphase tree manager which configures a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a tag operation unit which inserts and deletes an identification tag.

32. (Canceled)

33. (Currently amended) A spanning tree configuration method of configuring a spanning tree on a network connecting a plurality of nodes, comprising ~~the following steps of~~ :

configuring a self-configuring partial network which connects two different networks by, at least, four nodes accommodating no terminal; ~~and~~

configuring and managing a spanning tree for every other network adjacent to the self-configuring partial network, according to a spanning tree protocol;

a transfer step of determining an output destination port in every said self-configuring partial network, based on a destination MAC address of an input frame; and

a tree manager step of configuring a spanning tree for every said self-configuring partial network, according to the spanning tree protocol and transferring a frame,

wherein said tree manager step comprises:

a tree controller step of determining a state of a port according to the spanning tree protocol;

a BPDU transmitting/receiving step of transmitting and receiving one or more control signals of the spanning tree protocol; and

a port blocking step of closing or opening a port.

34. (Canceled)

35. (Currently amended) The spanning tree configuration method as set forth in claim 34, comprising:

said tree manager step ~~which manages~~ managing the spanning tree of the self-configuring partial network,

~~a step of~~ connecting ~~said transfer step by~~ a virtual port which packs into one the output ports to said self-configuring partial network.

36. (Original) The spanning tree configuration method as set forth in claim 34, comprising:

said transfer step of determining an output destination port in every said partial network, based on a destination MAC address of an input frame;

an RPR frame transfer step of determining a destination RPR address, a ring ID, and an output destination port, based on the destination MAC address of the input frame;

said tree manager step of configuring a spanning tree for every said partial network, according to the spanning tree protocol and transferring a frame;

a TTL manager step of performing subtraction of TTL and discarding the frame by the TTL; and

a step of connecting said tree manager step of managing the spanning tree of the self-partial network and said RPR frame transfer step through a virtual port for putting the output port toward the self-partial network together.

37. (Currently amended) The spanning tree configuration method as set forth in claim 34, wherein said TTL manager step comprises:

a TTL checker step of discarding the frame with reference to a TTL ~~value,~~ value; and

a TTL controller step of performing addition and subtraction of the TTL value.

38. (Original) The spanning tree configuration method as set forth in claim 35, comprising:

said transfer step of determining an output destination port in every said partial network, based on a destination MAC address of the input frame;

said tree manager step of configuring a spanning tree for every said partial network, according to the spanning tree protocol and transferring a frame; and

a BPDU identifying step of determining a tree manager step of an output destination of an input BPDU frame according to an identifier.

39. (Currently amended) The spanning tree configuration method as set forth in claim 38, wherein said BPDU identifying step comprises:

an identifier inserting step of inserting a tag or a bit (tags or bits) for identifying said tree manager ~~step,~~ step; and

an identifier deleting step of deleting the tag or the bit (tags or bits) used for identifying said tree manager step.

40. (Original) The spanning tree configuration method as set forth in claim 34, comprising:

an address learning step of creating a table for determining an output destination port by using the destination MAC address as a key, based on an input port and a source MAC address of the received frame.

41. (Currently amended) The spanning tree configuration method as set forth in claim 40, wherein said table comprises:

a destination MAC address field which describes the destination MAC ~~address,~~ address; and

an output port field which describes an output destination port corresponding to the destination MAC address.

42. (Currently amended) The spanning tree configuration method as set forth in claim 33, comprising:

~~the~~ a transfer step of determining an output destination port in every said partial

network, based on an identification tag of an input frame;

~~the~~ a multiphase tree manager step of configuring a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a step of connecting said multiphase tree manager step and said transfer step through a virtual port for putting the output port toward the self-configuring partial network together.

43. (Original) The spanning tree configuration method as set forth in claim 33, comprising a failure detecting step of detecting a failure through transmission and receipt of keep alive frames.

44. (Currently amended) The spanning tree configuration method as set forth in claim 43, wherein said failure detecting step comprises:

a signal separating step of separating the keep alive frames from the other ~~frame,~~ frame; and

a keep alive signal transmitting/receiving step of transmitting and receiving the keep alive frames.

45. (Original) The spanning tree configuration method as set forth in claim 43, comprising a blocking step of cutting off the port at a time of double failure.

46. (Currently amended) The spanning tree configuration method as set forth in claim 33, comprising:

~~the~~ a transfer step of determining an output destination port in every said partial network, based on an identification tag of the input frame;

~~the~~ a multiphase tree manager step of configuring a spanning tree for every partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a tag operating step of inserting and deleting an identification tag.

47. (Canceled) The spanning tree configuration method as set forth in claim 34, wherein said multiphase tree manager step comprises:

a tree controller step of determining a state of a port according to the spanning tree ~~protocol,~~ protocol;

a BPDU transmitting/receiving step of transmitting and receiving a control signal (control signals) of the spanning tree ~~protocol,~~ protocol; and

a port blocking step of closing or opening a port.

48. (Currently amended) A spanning tree configuration program comprising a sequence of machine-readable instructions encoded on a machine-readable medium ~~of~~ for running on each node forming a spanning tree on a network connecting a plurality of nodes, said sequence of instructions comprising the following functions of:

configuring a self-configuring partial network which connects two different networks ~~by~~ said self-configuring partial network comprising, at least, four nodes accommodating no terminal; ~~and~~

configuring and managing a spanning tree for every other network adjacent to the self-configuring partial network, according to a spanning tree protocol;

a transfer function of determining an output destination port in every said partial network, based on a destination MAC address of an input frame; and

a tree manager function of configuring a spanning tree for every said partial network, according to the spanning tree protocol and transferring a frame;

wherein said tree manager function comprises:

a tree controller function of determining a state of a port according to the spanning tree protocol;

a BPDU transmitting/receiving function of transmitting and receiving one or more control signals of the spanning tree protocol; and

a port blocking function of closing or opening a port.

49. (Canceled)

50. (Currently amended) The spanning tree configuration program as set forth in claim 49, comprising

a function of connecting said tree manager function of managing the spanning tree of the self-configuring partial network and said transfer function through a virtual port for putting the output port toward the self-configuring partial network together.

51. (Currently amended) The spanning tree configuration program as set forth in claim 48, comprising:

the transfer function of determining an output destination port in every said partial network, based on a destination MAC address of an input frame;

an RPR frame transfer function of determining a destination RPR address, a ring ID, and an output destination port, based on the destination MAC address of the input frame;

the tree manager function of configuring a spanning tree for every said partial network, according to the spanning tree protocol and transferring a frame;

a TTL manager function of performing subtraction of TTL and discarding the frame by the TTL; and

a function of connecting said tree manager function of managing the spanning tree of the self-configuring partial network and said RPR frame transfer function through a virtual port for putting the output port toward the self-configuring partial network together.

52. (Original) The spanning tree configuration program as set forth in claim 49, wherein said TTL manager function comprises a TTL checker function of discarding the frame with reference to a TTL value, and a TTL controller function of performing addition and subtraction of the TTL value.

53. (Original) The spanning tree configuration program as set forth in claim 50, comprising:

the transfer function of determining an output destination port in every said partial network, based on a destination MAC address of the input frame;

the tree manager function of configuring a spanning tree for every said partial network, according to the spanning tree protocol and transferring a frame; and

a BPDU identifying function of determining a tree manager function of an output destination of an input BPDU frame according to an identifier.

54. (Currently amended) The spanning tree configuration program as set forth in claim 53, wherein said BPDU identifying function comprises:

an identifier inserting function of inserting a tag or a bit (tags or bits) for identifying said tree manager ~~function,~~ function; and

an identifier deleting function of deleting the tag or the bit (tags or bits) used for identifying said tree manager function.

55. (Original) The spanning tree configuration program as set forth in claim 49, comprising an address learning function of creating a table for determining an output destination port by using the destination MAC address as a key, based on an input port and a source MAC address of the received frame.

56. (Currently amended) The spanning tree configuration program as set forth in claim 55, wherein said table comprises:

a destination MAC address field which describes the destination MAC ~~address,~~ address; and

an output port field which describes an output destination port corresponding to the destination MAC address.

57. (Original) The spanning tree configuration program as set forth in claim 58, comprising:

the transfer function of determining an output destination port in every partial network, based on an identification tag of an input frame;

the multiphase tree manager function of configuring a spanning tree for every partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a function of connecting said multiphase tree manager function and said transfer function through a virtual port for putting the output port toward the self-partial network together.

58. (Original) The spanning tree configuration program as set forth in claim 48, comprising a failure detecting function of detecting a failure through transmission and receipt of keep alive frames.

59. (Currently amended) The spanning tree configuration program as set forth in claim 58, wherein said failure detecting function comprises:

a signal separating function of separating the keep alive frames from the other ~~frame,~~ frame; and

a keep alive signal transmitting/receiving function of transmitting and receiving the keep alive frames.

60. (Original) The spanning tree configuration program as set forth in claim 58, comprising a blocking function of cutting off the port at a time of double failure.

61. (Currently amended) The spanning tree configuration program as set forth in claim 58, comprising:

~~the~~ a transfer function of determining an output destination port in every said partial

network, based on an identification tag of the input frame;

~~the~~ a multiphase tree manager function of configuring a spanning tree for every said partial network, according to the spanning tree protocol in every identification tag of the input frame; and

a tag operating function of inserting and deleting an identification tag.

62. (Canceled)

63. (Currently amended) The network system as set forth in claim 16, wherein, when transmitting a control signal (control signals) of said spanning tree protocol to a node adjacent to the self-node and connected to both said partial network and said other adjacent network,

~~transmitting~~ the coherent MAC address of the above node is transmitted as the destination of the control signal (control signals) of said spanning tree protocol.